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CONTROL OF THE

CORN EARWORM

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CONTROL OF THE
CORN EARWORM

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The corn earworm[1] is a serious pest of sweet corn in Canada, especially in the Maritime Provinces. Up to 1947, the earworm was noted only as a sporadic pest, occurring in outbreak numbers in Ontario in 1898, and in Manitoba, Ontario, Quebec, and the Maritime Provinces in 1911, when it attacked mainly late varieties of sweet corn. Since 1947, the earworm has been present every year in New Brunswick and most years in the southwestern part of Ontario. The earworm has been found in every province in Canada except Newfoundland.

The earworm feeds mainly on corn, but sometimes damages tomato and tobacco. After the corn plant matures, the earworm may complete its growth on crabgrass, beans, peas, okra, alfalfa, rose, savory, or dyer's weed.

DESCRIPTION

The newly hatched earworm, or larva, is whitish and has a large black head and it is in this stage that it is often mistaken for the European corn borer.[2] However, after the first molt, the earworm has a yellow, unspotted head and dark-brown or nearly black legs. It is brown or occasionally green, and has many fine pale lines on its sides and back. This color pattern changes little until the last stage. Then the earworm may be mainly one of various colors including brown, yellow, dark red, or black. There are alternating light and dark stripes running lengthwise on the back and sides, and two dark lines all along the middle of the back. The full-grown larva is 1½ to 2 inches long.

LIFE HISTORY

The corn earworm overwinters only rarely in the northern United States and Canada. Infestations in Canada are caused by a migration of the moths from the south.

The moths are strong fliers, flying at dusk and also on warm cloudy days. Each moth may lay 500 to 3,000 eggs. The eggs are laid singly on the fresh silk of the corn and are round with ridges along the sides. They are pale green when first laid, become yellow, then yellow marked with rust-red, and are about half as large as a common pinhead.

The eggs hatch in 4 to 10 days, depending on the weather. The young larvae feed on the silk and gradually work down to the kernels.

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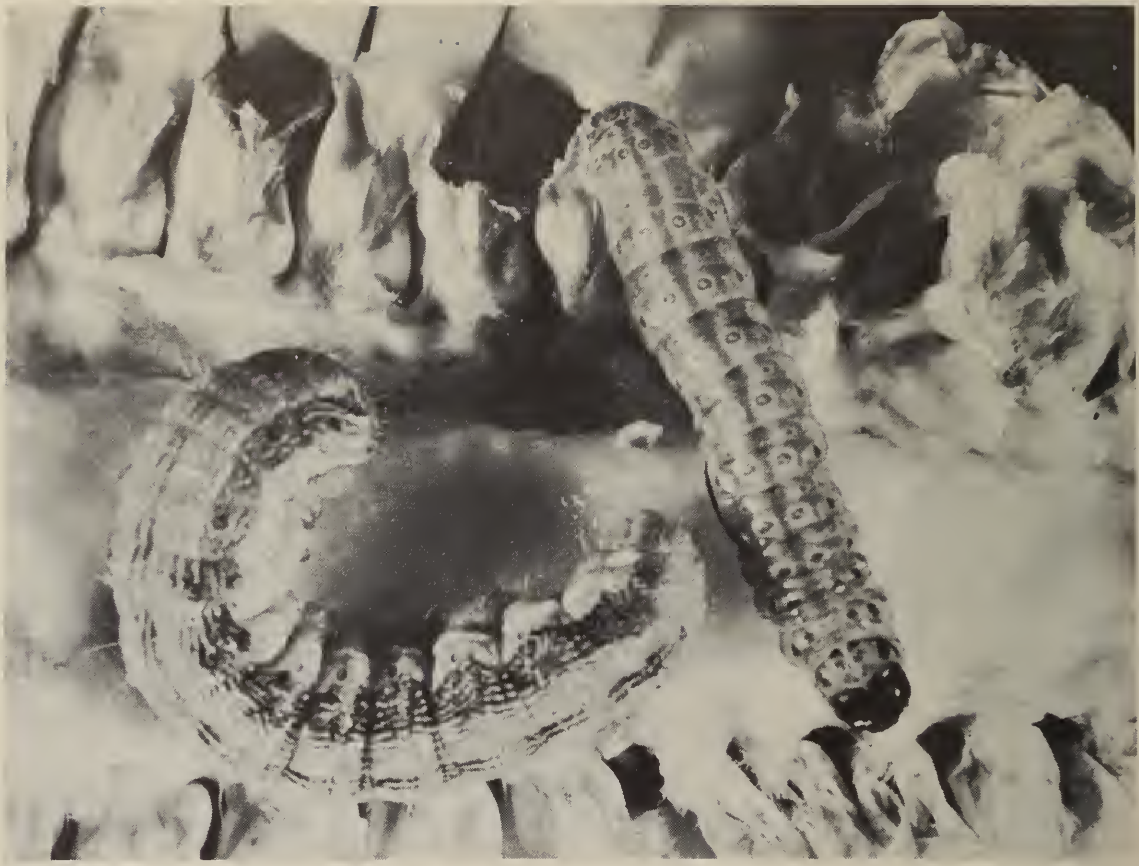
[1] *Heliothis zea* (Boddie)

[2] *Ostrinia nubilalis* (Hbn).



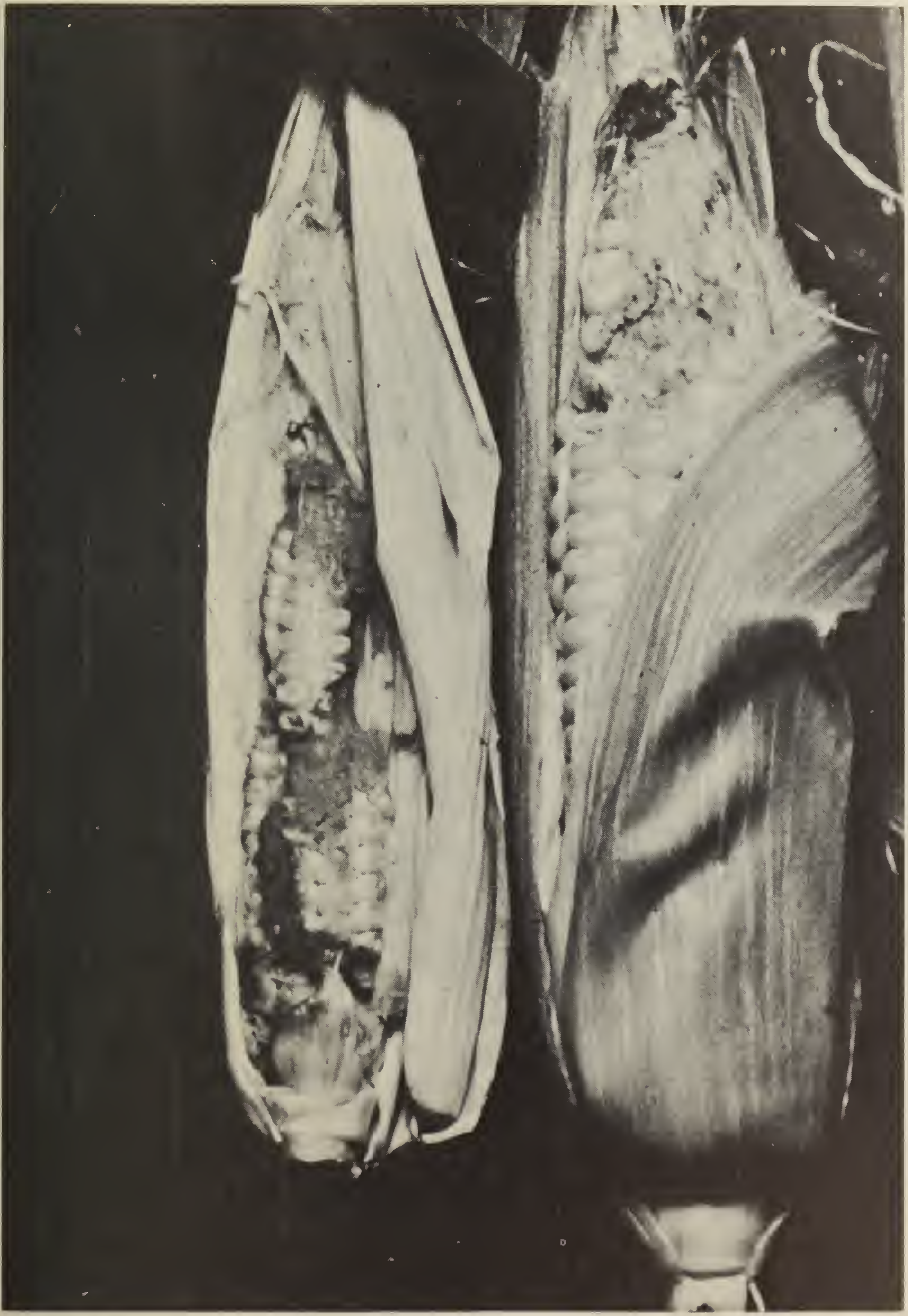
Two insect enemies of corn often mistaken for each other: European corn borer (right, spotted) and corn earworm (left, striped).

The larvae become full grown in 2 to 4 weeks. They drop to the ground and burrow into the soil to depths of 1 to 8 inches. Each larva opens a tunnel from the deepest point of the burrow to within half an inch from the surface. The walls of this tunnel are compact and lined with silk or a cementing material produced by the insect. When the tunnel is finished, the larva returns to the deepest point, which is slightly enlarged, and pupates within a few days.

In its natural habitat, the earworm overwinters in the pupal stage. The maximum northern range for overwinter survival is 43° 30' north latitude and even at this range winter mortality is heavy.

DAMAGE

In the southern part of the insect's range, damage to corn is first noticed in the late-whorl stage. However, in Canada, damage to the late-whorl stage is negligible. Here, the silk is attacked first; this causes inadequate pollination and results in the formation of nubbins. The kernels, especially at the tip of the ear, are eaten down to the cob. The



Damage to corn ears by the corn earworm.

ends of the ear have masses of moist castings. The earworms do not always remain in the first ear they enter, but often go from one ear to another. They are cannibalistic and usually only one full-grown earworm is found in each ear. The earworms in the ears are repulsive to consumers and troublesome to commercial canners. Also, molds develop quickly on damaged ears and the moldy ears may cause death to livestock.

CONTROL

Effective control depends on applying the insecticide while the larvae are small and still in the silk. Once the silk appears, it should be examined daily for the presence of eggs. At least 25 to 30 ears should be examined daily. As soon as eggs are detected, control operations should begin. Three or four sprays or dusts should be applied at 4-day intervals. Direct the spray at the silk.

Apply *one* of the following:

Spray	*Amount per acre*
DDT 25% emulsifiable concentrate	3 quarts
DDT 50% wettable powder	3 pounds
Carbaryl 50% wettable powder	3 pounds
Carbaryl 85% wettable powder	1 4/5 pounds

Dust	*Amount per acre*
DDT 5%	35 pounds

Do not feed forage, including ensilage, from plants treated with DDT to any livestock.

CAUTIONS

Follow closely all the directions and cautions listed on the insecticide label. The interval required between the last application and harvest varies with the material used, the number of applications, and the amount applied. Keep to the interval given to avoid residues that would render the corn unfit for use.

NATURAL CONTROL

Several species of ladybird beetles feed on the eggs but larval parasites are rare in Canada. Breeding of corn resistant to the corn earworm has produced some promising results. Resistance is closely associated with the length of ear, the tightness of the husks and balling of the silk. Check varieties recommended for your particular locality for at least some of these features.

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INQUIRIES

For more information, consult your agricultural representative or provincial entomologist, or write to the Research Station, Fredericton, New Brunswick, or to the nearest insect laboratory of the Canada Department of Agriculture.

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